

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

2

AMENDMENTS TO THE CLAIMS:

Claims 1, 10, 17, and 27 have been canceled without prejudice or disclaimer.

1. (Canceled).

2. (Currently amended) A signal synthesizing apparatus comprising:  
an optical pickup including a plurality of light receiving planes for receiving a light beam  
returning from an optical disc when a reading beam of light is radiated to the optical disc, and for  
producing a plurality of signals;  
adjusting means for adjusting signal levels of the plurality of signals such that each of the  
signal levels of the plurality of signals becomes equal to a reference level determined from at  
least one of the signal levels of the plurality of signals; and  
synthesizing means for synthesizing the plurality of signals after the signal levels of the plurality  
of signals are adjusted by the adjusting means to obtain a synthesized signal,

The signal synthesizing apparatus according to claim 1,  
wherein the reference level comprises a signal level of one of the plurality of signals, and  
the adjusting means adjusts signal levels of others of the plurality of signals such that each of the  
signal levels of the others of the plurality of signals becomes equal to the signal level of the one  
of the plurality of signals.

3. (Original) The signal synthesizing apparatus according to claim 2, wherein the adjusting  
means includes:

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

3

a relay circuit for producing a reference level signal representing the signal level of the one of the plurality of signals, and directly transferring the one of the plurality of signals to the synthesizing means; and

a plurality of amplifying relay circuits for producing subordinate level signals representing the signal levels of the others of the plurality of signals respectively, adjusting the signal levels of the others of the plurality of signals such that each of the subordinate level signals becomes equal to the reference level signal, and supplying the others of the plurality of signals having the adjusted signal levels to the synthesizing means.

4. (Previously presented) The signal synthesizing apparatus according to claim 3, wherein the relay circuit includes a signal line for transferring the one of the plurality of signals and a first peak detection circuit for utilizing a peak level of the one of the plurality of signals on the signal line as the reference level signal, and

wherein the plurality of amplifying relay circuits include:

a plurality of variable gain amplifiers for amplifying the others of the plurality of signals with gains determined in accordance with respective control signals,

a plurality of second peak detection circuits for utilizing peak levels of output signals of the plurality of variable gain amplifiers as the subordinate level signals respectively, and

a plurality of difference signal producing circuits for creating difference signals representing level differences between the reference level signal and the subordinate level signals respectively and utilizing the difference signals as the respective control signals.

Serial No. 10/067,539  
Docket No. PU01-01165  
(FJU1.016)

4

5. (Original) The signal synthesizing apparatus according to claim 4, wherein each of the first and second peak detection circuits includes a peak hold circuit.

6. (Previously presented) The signal synthesizing apparatus according to claim 5, wherein each of the first and second peak detection circuits includes a high pass filter upstream of the peak hold circuit.

7. (Previously presented) The signal synthesizing apparatus according to claim 4, wherein each of the first and second peak detection circuits includes an upper peak hold circuit for retaining an upper peak of the respective signal, a lower peak hold circuit for retaining a lower peak of the respective signal, and a subtraction circuit for obtaining a level difference between the upper and lower peaks and utilizing the level difference as the peak level.

8. (Previously presented) The signal synthesizing apparatus according to claim 7, wherein each of the first and second peak detection circuits includes a high pass filter upstream of the peak hold circuit.

9. (Currently amended) The signal synthesizing apparatus according to claim 2 [[1]], wherein the reference level comprising the signal level of one of the plurality of signals includes comprises an average of signal levels of at least two of the plurality of signals.

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

5

10. (Canceled).

11. (Currently amended) A signal synthesizing method comprising:  
receiving a light beam returning from an optical disc upon radiating a reading beam of  
light to the optical disc;  
producing a plurality of signals in accordance with optical intensities of the received light  
beam;  
adjusting signal levels of the plurality of signals such that each of the signal levels of the  
plurality of signals becomes equal to a reference level determined from at least one of the signal  
levels of the plurality of signals; and  
synthesizing the plurality of signals after the signal levels are adjusted in said adjusting to obtain  
a synthesized signal.

~~The signal synthesizing method according to claim 10,~~

wherein the reference level comprises a signal level of one of the plurality of signals, and  
said adjusting adjusts signal levels of others of the plurality of signals such that each of the signal  
levels of the others of the plurality of signals becomes equal to the signal level of the one of the  
plurality of signals.

12. (Previously presented) The signal synthesizing method according to claim 11, wherein  
said adjusting includes the substep of using a peak level of the one of the plurality of signals as  
the reference level signal.

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

6

13. (Previously presented) The signal synthesizing method according to claim 12, further including passing only a high frequency portion of each of the plurality of signals before said adjusting.

14. (Previously presented) The signal synthesizing method according to claim 12, further including:

detecting an upper peak of the one of the plurality of signals;  
detecting a lower peak of the one of the plurality of signals;  
obtaining a level difference between the upper and lower peaks; and  
using the level difference as the peak level.

15. (Previously presented) The signal synthesizing method according to claim 14, further including passing only a high frequency portion of the signals before said adjusting.

16. (Currently amended) The signal synthesizing method according to claim 11 [[10]], wherein the reference level comprising the signal level of one of the plurality of signals includes comprises an average of signal levels of at least two of the plurality of signals.

17. (Canceled).

Serial No. 10/067,539  
Docket No. PU01-01165  
(FJU.016)

7

18. (Currently amended) An apparatus comprising:

a plurality of detectors for receiving a light beam returning from an optical disc when a reading beam of light is radiated to the optical disc, and for producing a plurality of signals; and a level adjusting circuit for adjusting signal levels of the plurality of signals such that each of the signal levels of the plurality of signals becomes equal to a reference level determined from at least one of the signal levels of the plurality of signals.

The apparatus according to claim 17,

wherein the reference level comprises a signal level of one of the plurality of signals, and the level adjusting circuit adjusts signal levels of others of the plurality of signals such that each of the signal levels of the others of the plurality of signals becomes equal to the signal level of the one of the plurality of signals.

## 19. (Original) The apparatus according to claim 18, wherein the level adjusting circuit includes:

a relay circuit for producing a reference level signal representing the signal level of the one of the plurality of signals; and

an amplifying relay circuit for producing subordinate level signals representing the signal levels of the others of the plurality of signals respectively, and adjusting the signal levels of the others of the plurality of signals such that each of the subordinate level signals becomes equal to the reference level signal.

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

8

20. (Previously presented) The apparatus according to claim 19, wherein the relay circuit includes a first peak detection circuit for using a peak level of the one of the plurality of signals as the reference level signal, and

wherein the amplifying relay circuit includes:

a plurality of variable gain amplifiers for amplifying the others of the plurality of signals with gains determined in accordance with respective control signals,

a plurality of second peak detection circuits for using peak levels of output signals of the plurality of variable gain amplifiers as the subordinate level signals respectively, and

a plurality of difference signal producing circuits for creating difference signals representing level differences between the reference level signal and the subordinate level signals respectively and using the difference signals as the respective control signals.

21. (Original) The apparatus according to claim 20, wherein each of the first and second peak detection circuits includes a peak hold circuit.

22. (Previously presented) The apparatus according to claim 21, wherein each of the first and second peak detection circuits includes a high pass filter upstream of the peak hold circuit.

23. (Previously presented) The apparatus according to claim 20, wherein each of the first and second peak detection circuits includes an upper peak hold circuit for retaining an upper peak of the respective signal, a lower peak hold circuit for retaining a lower peak of the respective signal,

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

9

and a subtraction circuit for obtaining a level difference between the upper and lower peaks and using the level difference as the peak level.

24. (Previously presented) The apparatus according to claim 23, wherein each of the first and second peak detection circuits includes a high pass filter upstream of the peak hold circuit.

25. (Currently amended) The apparatus according to claim 18 [[17]], wherein the reference level comprising the signal level of one of the plurality of signals includes comprises an average of signal levels of at least two of the plurality of signals.

26. (Currently amended) A signal synthesizing apparatus comprising:  
an optical pickup including a plurality of light receiving planes for receiving a light beam returning from an optical disc when a reading beam of light is radiated to the optical disc, and for producing a plurality of signals;  
adjusting means for adjusting signal levels of the plurality of signals such that each of the signal levels of the plurality of signals becomes equal to a reference level determined from at least one of the signal levels of the plurality of signals; and  
synthesizing means for synthesizing the plurality of signals after the signal levels of the plurality of signals are adjusted by the adjusting means to obtain a synthesized signal,  
The signal synthesizing apparatus according to claim 1,

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

10

wherein the adjusting means comprises a relay circuit including a signal line for transferring the one of the plurality of signals and a peak detection circuit for utilizing a peak level of the one of the plurality of signals on a signal line as the reference level signal.

27. (Canceled).

28. (Previously presented) The signal synthesizing apparatus according to claim 26, wherein said relay circuit produces a reference level signal representing the signal level of the one of the plurality of signals, and directly transfers the one of the plurality of signals to the synthesizing means.

29. (Currently amended) A signal synthesizing apparatus comprising:  
an optical pickup including a plurality of light receiving planes for receiving a light beam  
returning from an optical disc when a reading beam of light is radiated to the optical disc, and for  
producing a plurality of signals;  
adjusting means for adjusting signal levels of the plurality of signals such that each of the  
signal levels of the plurality of signals becomes equal to a reference level determined from at  
least one of the signal levels of the plurality of signals; and  
synthesizing means for synthesizing the plurality of signals after the signal levels of the plurality  
of signals are adjusted by the adjusting means to obtain a synthesized signal,  
wherein the adjusting means comprises a plurality of amplifying relay circuits including;

Serial No. 10/067,539  
Docket No. PU01-01165  
(FUJI.016)

11

a plurality of variable gain amplifiers for amplifying the others of the plurality of signals with gains determined in accordance with respective control signals,  
a plurality of peak detection circuits for utilizing peak levels of output signals of the plurality of variable gain amplifiers as the subordinate level signals respectively, and  
a plurality of difference signal producing circuits for creating difference signals representing level differences between the reference level signal and the subordinate level signals respectively and utilizing the difference signals as the respective control signals, and

~~The signal synthesizing apparatus according to claim 27,~~

wherein said plurality of amplifying relay circuits produce subordinate level signals representing the signal levels of the others of the plurality of signals respectively, adjust the signal levels of the others of the plurality of signals such that each of the subordinate level signals becomes equal to the reference level signal, and supply the others of the plurality of signals having the adjusted signal levels to the synthesizing means.